

REMARKS

By this amendment, Applicants have amended claim 25 to recite that the surface of the top sheet in contact with a wearer's urinating part and surrounding skin is a mesh sheet. This limitation is supported by the disclosure at page 8, lines 3-5 of the original specification and page 8, lines 1-3 of the substitute specification. Claim 25 has also amended to correct "selected" to read --sealed-- and to correct "to" to read --for--. Claims 26 have been canceled without prejudice or disclaimer and claims 29 and 30 added to define further aspects of the present invention. Claim 29 is supported the disclosure at page 9, lines 11-13 of the original specification, i.e., page 9, lines 9-11 of the substitute specification. Claim 30 is supported by the disclosure at page 7, lines 14 and 15 of the original and substitute specification. Claims 25 and 28 have also been amended to change "in responsive" to read --in response--.

Claim 25 stands rejected under 35 U.S.C. 112, first paragraph, as allegedly failing to comply with the written description requirement. This rejection is traversed, at least insofar it applies to amended claim 25. Applicants submit that claim 25, both as previously submitted and as presently amended, is supported by adequate written description. In particular, claim 25 is supported by the following disclosure at page 8, lines 1-3 of the substitute specification:

In addition, a mesh sheet makes up a part of the surface of the non-woven fabric that is used as the top sheet 2 where it comes in contact with the wearer's urinating part and the surrounding skin.

See, also, page 8, lines 3-5 of the original specification.

Accordingly, clearly claim 25 is supported by the written description.

Therefore, reconsideration and withdrawal of the rejection of claim 25 under 35 U.S.C. 112, first paragraph, are requested.

Claims 25 and 28 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,911,222 to Lawrence et al. in view of U.S. Patent No. 5,002,541 to Conkling et al. Applicants traverse this rejection and request reconsideration thereof.

The present invention relates to an automatic urine disposal device including a urine receptacle, a sealed urine tank, and urine drainage tube, at least part of which is made of soft flexible materials for discharging urine from the urine absorbent material in the urine receptacle to the urine tank, a vacuum pump for decreasing air pressure in the urine tank, a urine sensor provided along the urine drainage tube which electrically turns on or becomes electrically conductive in response to detecting a urination in the vicinity of the urine drainage port of the urine receptacle and initiates the vacuum pump.

The Lawrence et al. patent discloses a liquid removal system having an interface device and a vacuum source. The interface device has a porous membrane with an entrance zone on one side. The vacuum source maintains a vacuum on the side of the membrane opposite the entrance zone when the membrane is wetted. Liquid which contacts the wetted porous membrane is removed from the interface device by the vacuum source.

As admitted by the Examiner, the Lawrence et al. patent does not disclose the automatic urine disposal device for the present invention, including the presently claimed urine sensor.

Also, with respect to claims 25, 29 and 30, the Lawrence et al. patent does not disclose that the body contact surface of the interface device includes a mesh sheet.

The present invention can increase the percentage of urine collection by the urine receptacle's urine absorbent material and reduce the amount of urine which

remains in the urine receptacle. With the increase in the percentage of urine collection, a small capacity vacuum pump with a low power can drain urine from the urine absorbent material. Therefore, it is possible to drain urine from the urine receptacle without discomfort to the wearer, and the device can be compact and lightweight.

Since the device can be compact and lightweight, if it is used as a portable automatic urine disposal device, it will be most efficient. Furthermore, because the vacuum pump does not unnecessarily absorb air, noise is minimal and urine can be quietly drained without bothering other patients in the room at night. In addition, since the vacuum pump is driven only when the urine is detected by the urine sensor, this also makes it possible to keep noise at a minimum.

The Conkling et al. patent discloses a device for detecting the presence of urine at the genital region of an individual and removing and storing the urine. The device includes an external urine collecting vessel which is supported at the genital region to contain the urine within the vessel. Liquid sensors are contained within the vessel for detecting the presence of urine and automatically activating a pump to draw the urine through a tubing to a temporary storage chamber. A liquid impermeable liner is placed within the collecting vessel for improved hygiene and for directing the urine away from the individual.

The external urine collecting vessel of Conkling et al. is quite different than the urine receptacle of the present invention and the interface device of Lawrence et al. The external urine collecting vessel of Conkling et al. is not made of the outer sheet, top sheet and urine absorbent material as presently claimed. Rather, the vessel in Conkling et al. is in a form of an open-ended cup without the presently claimed sheets or absorbent material. Since there is no absorbent material and the cup is open-ended, the urine contained in the vessel must clearly be detected and drawn

out. The interface device of Lawrence et al. is of a completely different construction. It is submitted there would have been no reason for one of ordinary skill in the art to have used the liquid sensor of Conkling et al. in the interface device of Lawrence et al. This is evidenced by the fact that while liquid sensors are known, the inventors of Lawrence et al. do not use them.

For the foregoing reasons, it is submitted it would not have been obvious to modify the system of Lawrence et al. using the liquid sensors of Conkling et al.

Moreover, it is submitted there would have been no reason to provide the urine receptacle set forth claim 25, including a surface of the top sheet in contact with a wearer's urinating part and surrounding skin being a mesh sheet.

For the foregoing reasons, the presently claimed invention is patentable over the proposed combination of Lawrence et al. and Conkling et al.

In view of the foregoing amendments and remarks, favorable reconsideration and allowance of all the claims now in the application are requested.

To the extent necessary, applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to the deposit account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (Case: 503.43626X00), and please credit any excess fees to such deposit account.

Respectfully submitted,

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